**22 TPH CAPACITY BOILER TECHNICL DETAILS**

**Make : CHEEMA BOILERS LIMITED**

**Capacity : 22 TPH +/-2 (MCR)**

**Rating : 1053 M2**

**Steam Pressure O/L : 66 Kgs./Cm2**

**Steam Temperature O/L : 485oC +/-5oC**

**Type of Boiler : AFBC, Membrane Water Wall By Drum**

**Fuel Feeding : Under Bed Feeding, Over Bed Feeding**

**Draught : Artificial Balanced Draught (ID,FD,Pan Fans)**

**Type of Fuel : Coal, Indigenous (or) Imported Coal, Rice Husk**

 **Underfeeding Over Bed Wood Chips**

**Auxiliaries : Boiler feed Water Pumps -- 2 Nos.(One Standby)**

 **ID Fan - with VFD Control**

 **FD Fan – with CFD Control**

 **P.A.Fan – Pnuematic Cylinder Damper Control**

**Dust Collector : ESP suitable for 22 TPH Boiler Thermax Make**

**Ash Handling System : Bottom & Fly Ash collected through Screw Convleyor &**

 **Belt**

**3 M.W. TURBINE TECHNICAL DETAILS**

**Make : TRIVENI TURBINES LIMITED**

**Frame Size : Fr-13B**

**Sr.No. : 21**

**Year of Manufcturing : 2015**

1. **TURBINE**

 **Power Rate : 3000 KW**

 **Inlet Steam Pressure : 64 ATA**

 **Inlet Steam Temperature : 485oC**

 **Inlet Steam Flow : 22500 Kg./Hr.**

 **Extraction Pressure : 7 ATA**

 **Extraction Flow : 14000 Kg./Hr.**

 **Extraction Pressure : 0.1 ATA**

 **Turbine Speed : 8325 RPM**

 **Alternator Speed : 1500 RPM**

 **Turbine Trip Speed Range : 9158/9574 RPM**

 **First Critical Speed(Range) : 3800/4500 RPM**

 **No. of Stages : 10 Nos.**

 **Steam Inlet size : 8” NB 900# RF**

 **Direction of Rotation**

 **From Output end : Counter Clockwise**

1. **GEAR BOX(BT0210025)**

 **Make : TEIL – Mysore**

 **Type : Single**

 **Model : HSG-432**

 **Speed/Input : 8325/1500 RPM**

1. **OIL SYSTEMS**

 **Lubricating Oil : ISO-VG-46**

 **Oil Reservoir Capacity : 3000 Ltrs.**

 **1st Fill Oil Requirement : 6000 Ltrs.**

 **Lube Oil Pressure Range : 1.8 – 2 Kg./Cm2g**

 **Control Oil Pressure : 4.5 – 5.5 Kg./Cm2g**

**A MAIN LUBRICATING OIL PUMP**

 **Manufacturer : TEIL**

 **Type : Geared**

 **Capacity : 55 GPM**

 **Driver : Gear Box**

**B AUXILIARY OIL PUMPL(AC) BT0750138**

 **Manufacturer : Rotodel**

 **Model : (RDN X 200 L)**

 **Type : Geared**

 **Speed : 1440 RPM**

 **Capacity : 55 GPM**

 **Motor : 7.5 HP**

**C EMERGENCY OIL PUMP (EOP) (BT0750154)**

 **Manufacturer : Rotodel**

 **Model : (RDN x 125 L)**

 **Type : Geared**

 **Capacity : 15 IGPM**

 **Driver : 2 HP DC Supply**

**D OIL COOLER (BT0140073)**

 **Make : ESKAY INDUSTRIES LTD.,**

 **Model : (TB2SAM4195-R5 Item A)**

 **Type : Horizontal Duplex**

 **Capacity : 70 GPM**

 **Oil Temperature Inlet : 60oC**

 **Oil Temperature Outlet : 45oC**

 **No. of Tubes : 196 O/D x 18 BWG**

 **Surface Area : 24 SQM**

 **Cooling Water Temp.Inlet : 35oC**

 **Cooling Water Temp.Outlet : 38oC**

 **Cooling Water Flow : 143 GPM**

**E OIL FILTER (BT0150013)**

 **Manufacture : Industrial Enterprises(IEH 621)**

 **Model : Duplex**

 **Capacity : 75 GPM**

 **Grade of Filtration : 10 -15 Microns**

 **Element No. : 75-03**

**F CONTROL OIL FILTER (BT0150042)**

 **Manufacture : Industrial Enterprises(IEH 1435)**

 **Model : Simplex**

 **Capacity : 8 GPM**

 **Grade of Filtration : 15 Microns**

 **Element No. : 8-04**

**G EOP FILTER (BT0150020)**

 **Manufacture : Industrial Enterprises(IEH 1427)**

 **Model : Simplex**

 **Capacity : 15 GPM**

 **Grade of Filtration : 15 Microns**

 **Element No. : 15-10**

**H PRESSURE RELIEF VALVE (MOP) IMO190012**

 **Make : Hopkinsons,U.K**

 **Duty : Control Oil**

 **Size Inlet/Outlet : 1/2" NB**

 **Set Pressure : 6.05 kg./Cm2g**

 **Discharge Capacity : 15 GPM**

**I PRESSURE RELIEF VALVE (AOP) VL0100021**

 **Make : Telace/Nirmal**

 **Duty : Lube Oil**

 **Size Inlet/Outlet : 1/2" NB – ANSI 150# RF**

 **Set Pressure : 5.6 kg./Cm2g**

 **Discharge Capacity : 55 GPM**

**J PRESSURE RELIEF VALVE (LUBE OIL) IM0190006**

 **Make : Hopkinsons,U.K**

 **Duty : Lube Oil**

 **Size Inlet/Outlet : 1" NB**

 **Set Pressure : 1.80 kg./Cm2g**

 **Discharge Capacity : 10 GPM**

**K ACCUMULATOR (BT0220001)**

 **Manufacturer : Fawcett India**

 **Model : 2000A-00-201**

 **Pre-charge Pressure : 3.9 Kg./Cm2g**

**L SOLENOID VALVE**

 **Make : ASCO**

 **Volts : 110 DC**

 **Connection : 3/4” NPT (F)**

 **Action : De Energise to Trip**

**M THROTTLE VALVE SETTING**

 **Throttle Valve Lift No.1 : 33.50 mm**

 **Throttle Valve Lift No.2 : 18.50 mm**

 **Throttle Valve Lift No.3 : 05.00 mm**

 **Total Lift (Available) : 57.00 mm**

**GENERAL**

**A HIGH SPEED COUPLING (BT0060166)**

 **Manufacturer : Euroflex Transmission (I) Pvt.Ltd.,**

 **Model : 8GH2-160-S (without S pin)**

 **Drawing No. : 03340-00**

**B LOW SPEED COUPLING**

 **Manufacturer : Euroflex Transmission (I) Pvt.Ltd.,**

 **Model : 8GBH-270**

 **Drawing No. : 61209-00 REV-G ITEM-B**

**C GOVERNOR**

 **Type : Woodward (505E Model)**

 **Model : Digital**

**D ACTUATOR (HP)**

 **Manufacturer : Woodward**

 **Type : TG 13E**

 **Operating Speed : 1108 RPM**

**E ACTUATOR (LP)**

 **Manufacturer : Woodward**

 **Type : TG 13E**

 **Motor : 0.5 HP**

 **CONDENSER**

 **Make : MAZDA LIMITED**

 **Type : Surface, Fixed Tube Type**

 **Number of Passes : Two**

 **Water Box Type : Divided**

 **Steam Flow : 12,000 Kg./Hr.**

 **Steam Pressure : 0.095 ATA**

 **Cleanliness Factor : 0.85**

 **Cooling Water Temp.(Inlet) : 32oC**

 **Cooling Water Temp.(outlet) : 40oC**

 **Cooling Water Quantity : 820 M3/Hr.**

 **Cooling Water Inlet/Outlet Sizes: 12”**

 **Weight(Working) : 17660 Kgs.**

 **No. of Tubes : 912 SS-304ERW 3/4" X 20 BWG**

 **Surface Area : 389.48 M2**

**B EJECTOR (STARTUP)**

 **Manufacturer : Mazda Ltd.,**

 **Motive Steam Pressure : 12 Kg./cm2g**

 **Motive Steam Temperature : 300oC**

 **Steam Consumption for Hogger: 370 Kg./Hr.**

**C EJECTOR (MAIN)**

 **Manufacturer : Mazda Ltd.,**

 **Motive Steam Pressure : 6 Kg./cm2g**

 **Motive Steam Temperature : 270oC**

 **Steam Consumption (Total) : 288 Kg./Hr.**

 **GLAND VENT CONDENSER**

 **Manufacturer : Eskay Industries**

 **Type : Horizontal Shell & Tube**

 **Steam Flow : 300 Kg./Hr.**

 **Condensate Flow : 11,700 Kg./Hr.**

 **Condensate Temp.Inlet/Outlet: 53/69.7oC**

 **Condensate Pressure : 12 Kg./Cm2g**

 **Surface Area : 9.66 M2**

 **GVC BLOWER**

 **Manufacturer : Nadi Airtechnics**

 **Capacity : 650 CFM Air at 2”WC**

 **Model : 2880**

 **Motor : 0.5 HP**

 **CONDENSATE EXTRACTION PUMP**

 **Manufacturer : KSB Pumps Ltd.,**

 **Type : Centrifugal**

 **Model : CPKGCM-32-250**

 **Capacity : 13.2 M3/Hr.**

 **Rated Head : 90 Mtrs.**

 **Motor Speed : 2900/2920 RPM**

 **ALTERNATOR**

 **Make : BHEL**

 **Capacity : 3000 KVA**